

To all our customers

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Renesas Technology Corp.
Customer Support Dept.
April 1, 2003

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Keep safety first in your circuit designs!

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2SD2122(L)/(S), 2SD2123(L)/(S)

Silicon NPN Epitaxial

RENESAS

ADE-208-926 (Z)
1st. Edition
September 2000

Application

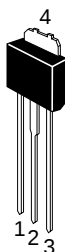
Low frequency power amplifier complementary pair with 2SB1409(L)/(S)

Outline

DPAK



S Type



L Type

- 1. Base
- 2. Collector
- 3. Emitter
- 4. Collector

2SD2122(L)/(S), 2SD2123(L)/(S)

Absolute Maximum Ratings (Ta = 25°C)

Item	Symbol	Ratings		Unit
		2SD2122(L)/(S)	2SD2123(L)/(S)	
Collector to base voltage	V_{CBO}	180	180	V
Collector to emitter voltage	V_{CEO}	120	160	V
Emitter to base voltage	V_{EBO}	5	5	V
Collector current	I_C	1.5	1.5	A
Collector peak current	$I_{C(peak)}$	3	3	A
Collector power dissipation	P_C^{*1}	18	18	W
Junction temperature	T_j	150	150	°C
Storage temperature	T_{stg}	–55 to +150	–55 to +150	°C

Note: 1. Value at $T_C = 25^\circ\text{C}$.

Electrical Characteristics (Ta = 25°C)

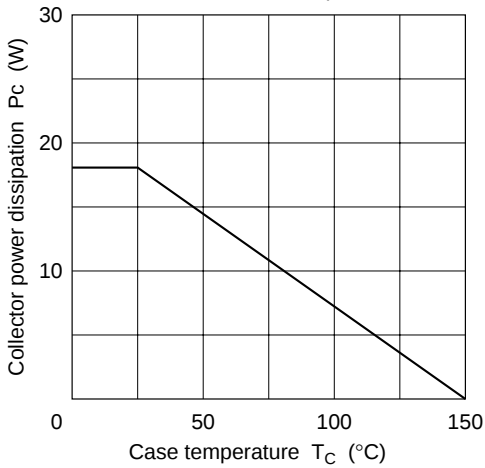
Item	Symbol	2SD2122(L)/(S)			2SD2123(L)/(S)			Unit	Test conditions
		Min	Typ	Max	Min	Typ	Max		
Collector to base breakdown voltage	$V_{(BR)CBO}$	180	—	—	180	—	—	V	$I_C = 1\text{ mA}$, $I_E = 0$
Collector to emitter breakdown voltage	$V_{(BR)CEO}$	120	—	—	160	—	—	V	$I_C = 10\text{ mA}$, $R_{BE} = \infty$
Emitter to base breakdown voltage	$V_{(BR)EBO}$	5	—	—	5	—	—	V	$I_E = 1\text{ mA}$, $I_C = 0$
Collector cutoff current	I_{CBO}	—	—	10	—	—	10	μA	$V_{CB} = 160\text{ V}$, $I_E = 0$
DC current transfer ratio	h_{FE1}^{*2}	60	—	200	60	—	200	A	$V_{CE} = 5\text{ V}$, $I_C = 150\text{ mA}^{*1}$
	h_{FE2}	30	—	—	30	—	—		$V_{CE} = 5\text{ V}$, $I_C = 500\text{ mA}^{*1}$
Collector to emitter saturation voltage	$V_{CE(sat)}$	—	—	1	—	—	1	V	$I_C = 500\text{ mA}$, $I_B = 50\text{ mA}^{*1}$
Base to emitter voltage	V_{BE}	—	—	1.5	—	—	1.5	V	$V_{CE} = 5\text{ V}$, $I_C = 150\text{ mA}^{*1}$
Gain bandwidth product	f_T	—	180	—	—	180	—	MHz	$V_{CE} = 5\text{ V}$, $I_C = 150\text{ mA}^{*1}$
Collector output capacitance	C_{ob}	—	14	—	—	14	—	pF	$V_{CB} = 10\text{ V}$, $I_E = 0$, $f = 1\text{ MHz}$

Notes: 1. Pulse test

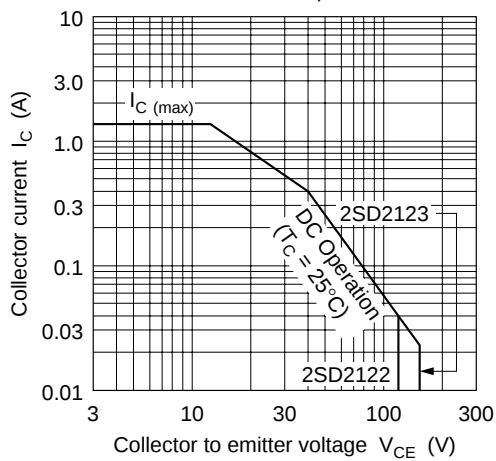
2. The 2SD2122(L)/(S) and 2SD2123(L)/(S) are grouped by h_{FE1} as follows.

B	C
60 to 120	100 to 200

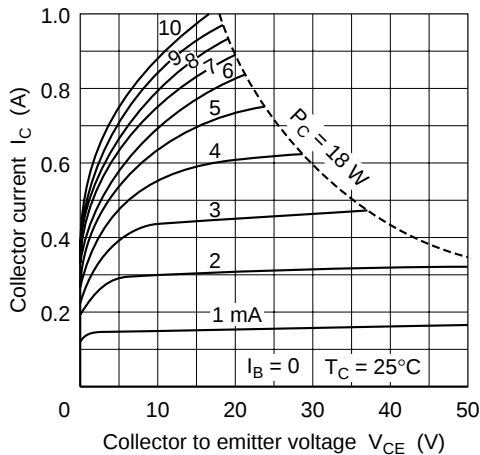
Maximum Collector Dissipation Curve



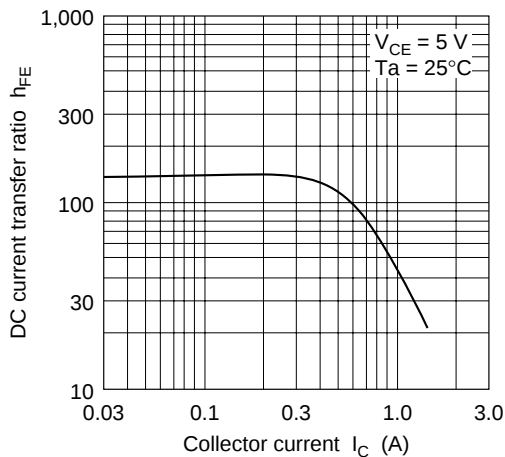
Area of Safe Operation

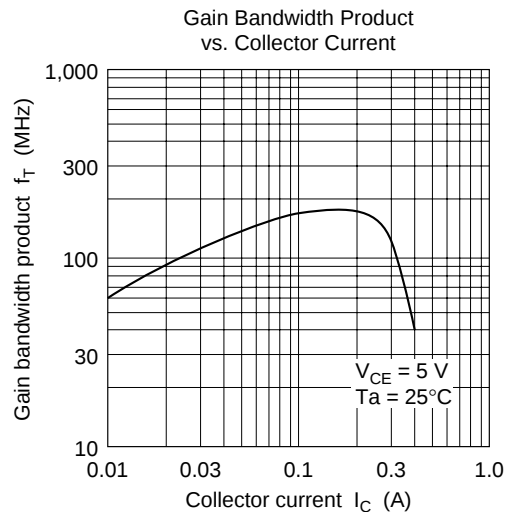
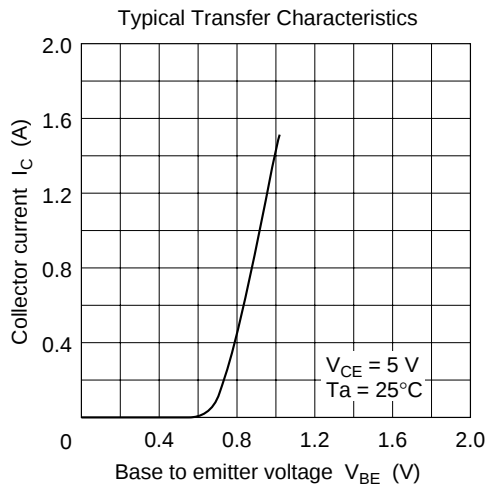
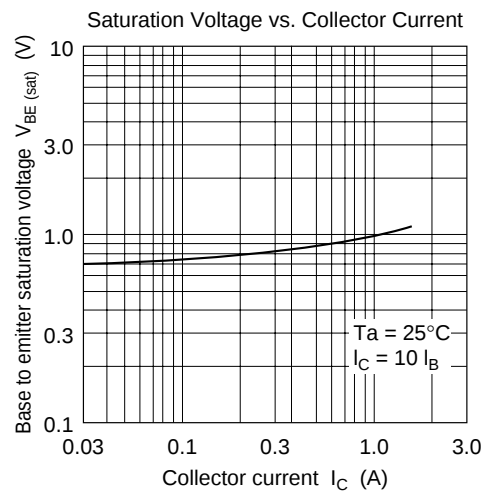
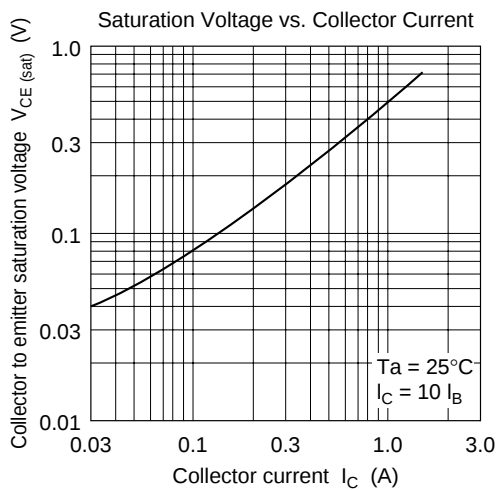


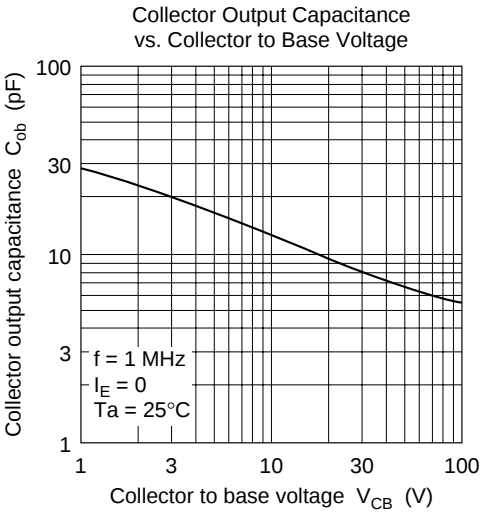
Typical Output Characteristics



DC Current Transfer Ratio vs. Collector Current







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HITACHI

Hitachi, Ltd.

Semiconductor & IC Div.
Nippon Bldg., 2-6-2, Ohte-machi, Chiyoda-ku, Tokyo 100, Japan
Tel: Tokyo (03) 3270-2111
Fax: (03) 3270-5109

For further information write to:

Hitachi America, Ltd.
Semiconductor & IC Div.
2000 Sierra Point Parkway
Brisbane, CA. 94005-1835
U S A
Tel: 415-589-8300
Fax: 415-583-4207

Hitachi Europe GmbH
Electronic Components Group
Continental Europe
Domacher Straße 3
D-85622 Feldkirchen
München
Tel: 089-9 91 80-0
Fax: 089-9 29 30 00

Hitachi Europe Ltd.
Electronic Components Div.
Northern Europe Headquarters
Whitebrook Park
Lower Cookham Road
Maidenhead
Berkshire SL6 8YA
United Kingdom
Tel: 0628-585000
Fax: 0628-778322

Hitachi Asia Pte. Ltd.
16 Collyer Quay #20-00
Hitachi Tower
Singapore 0104
Tel: 535-2100
Fax: 535-1533

Hitachi Asia (Hong Kong) Ltd.
Unit 706, North Tower,
World Finance Centre,
Harbour City, Canton Road
Tsim Sha Tsui, Kowloon
Hong Kong
Tel: 27359218
Fax: 27306071